

26. (Amended) A method of fabricating a bioelectronic component, the method comprising the steps of:

- C1
- a. providing a batch of nanoparticles having submicron sizes and an electrical characteristic;
  - b. depositing the nanoparticles onto a surface;
  - c. sintering the batch of nanoparticles to form at least one layer of an electrical device; and
  - d. positioning a biological material to be in electrical communication with at least one layer of said electrical device to facilitate an electrical measurement thereof, the electrical measurement being affected by the biological material, wherein the biological material is selected from the group consisting of proteins, polypeptides, polysaccharides, carbohydrates, enzyme substrates, antigens, antibodies, pharmaceuticals, and combinations thereof.

Please add the following new claim <sup>31</sup>~~29~~:

<sup>Rule 1.126</sup> 31~~29~~ (New) A method of fabricating a bioelectronic component, the method comprising the steps of:

- C2
- a. providing a batch of nanoparticles having submicron sizes and an electrical characteristic;
  - b. depositing the nanoparticles onto a surface;
  - c. sintering the batch of nanoparticles to form at least one layer of an electrical device; and
  - d. positioning a biological material to be in electrical communication with at least one layer of said electrical device to facilitate an electrical measurement thereof, the electrical measurement being affected by the biological material, wherein the biological material comprises nucleic acids.

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26. A method of fabricating a bioelectronic component, the method comprising the steps of:
- a. providing a batch of nanoparticles having submicron sizes and an electrical characteristic;
  - b. depositing the nanoparticles onto a surface;
  - c. sintering the batch of nanoparticles to form at least one layer of an electrical device; and
  - d. positioning a biological material to be in electrical communication with at least one layer of said electrical device to facilitate an electrical measurement thereof, the electrical measurement being affected by the biological material, wherein the biological material is selected from the group consisting of proteins, polypeptides, polysaccharides, carbohydrates, enzyme substrates, antigens, antibodies, pharmaceuticals, and combinations thereof.
27. The method of claim 26 repeated at a plurality of locations on a substrate to form an array of bioelectronic component.
28. The method of claim 26 in which said electrical device is a transistor comprising a semiconductor layer disposed between a source element and a drain element, and depositing the nanoparticles onto a surface includes depositing the nanoparticles onto the semiconductor layer.
29. A method of fabricating a bioelectronic component, the method comprising the steps of:
- a. providing a batch of nanoparticles having submicron sizes and an electrical characteristic;
  - b. depositing the nanoparticles onto a surface;
  - c. sintering the batch of nanoparticles to form at least one layer of an electrical device; and
  - d. positioning a biological material to be in electrical communication with at least one layer of said electrical device to facilitate an electrical measurement thereof,

the electrical measurement being affected by the biological material, wherein the biological material comprises nucleic acids.